United States Environmental Protection Agency

The Third Unregulated Contaminant Monitoring Rule (UCMR 3)

Fact Sheet for Assessment Monitoring of List 1 Contaminants

Overview of the Rule

- **Title**: Revisions to the Unregulated Contaminant Monitoring Rule for Public Water Systems; 77 FR 26072, May 2, 2012.
- **Purpose**: To collect occurrence data for contaminants suspected to be present in drinking water but that do not have health-based standards set under the Safe Drinking Water Act (SDWA). Assessment Monitoring targets contaminants that are analyzed with methods that utilize existing and widely used technology. The UCMR program is the primary source of drinking water contaminant occurrence data used by EPA in regulatory determinations.
- **Description**: UCMR 3 includes Assessment Monitoring for 21 chemical contaminants using six EPA-approved analytical methods and four equivalent consensus methods. Public water systems (PWSs) subject to Assessment Monitoring will sample within a 12-month period during 2013 - 2015.
- **Utilities Affected**: Community water systems (CWSs) and non-transient non-community water systems (NTNCWSs) with more than 10,000 retail customers and a representative sample of 800 systems serving 10,000 or fewer retail customers are required to conduct Assessment Monitoring.

UCMR 3 List 1 Contaminants

Contaminant / CASRN[1]	MRL[2] (µg/L)	Use or Environmental Source[3]	Health Effects[3]
Volatile Organic Compounds: EPA Method 524.3			
1,2,3-trichloropropane 96-18-4	0.03	Halogenated alkane; used as an ingredient in paint, varnish remover, solvents and degreasing agents	**Reference Dose (RfD)**: – 0.006 mg/kg/day (Integrated Risk Information System [IRIS]) associated with changes in blood chemistry and reduction in red blood cell mass in rats – 0.004 mg/kg/day (IRIS) associated with increased liver weight in male rats **Slope Factor**: 30 $(mg/kg/day)^{-1}$ (IRIS)
1,3-butadiene 106-99-0	0.1	Alkene; used in rubber manufacturing and occurs as a gas	**EPA Cancer Class:** B2 – probable human carcinogen (sufficient evidence from animal studies and inadequate/no epidemiologic studies)
chloromethane (methyl chloride) 74-87-3	0.2	Halogenated alkane; used as foaming agent, in production of other substances, and by-product that can form when chlorine used to disinfect drinking water	**RfD**: 0.004 mg/kg/day associated with mild neurological effects in humans (EPA Health Advisory [HA])
1,1-dichloroethane 75-34-3	0.03	Halogenated alkane; used as a solvent	**EPA Cancer Class:** C – possible human carcinogen
bromomethane 74-83-9	0.2	Halogenated alkane; occurs as a gas, and used as a fumigant on soil before planting, on crops after harvest, on vehicles and buildings, and for other specialized purposes	**RfD**: 0.0014 mg/kg/day (IRIS) associated with lesions in the forestomach **EPA Cancer Class:** D – not classifiable as to human carcinogenicity
chlorodifluoromethane (HCFC-22) 75-45-6	0.08	Chlorofluorocarbon; occurs as a gas, and used as a refrigerant, as a low-temperature solvent, and in fluorocarbon resins, especially tetrafluoroethylene polymers	Associated with degenerative effects on the brain and coverings; changes in the blood cell count (unspecified); and nutritional and metabolic effects, such as weight loss or decreased weight gain

Contaminant / CASRN[1]	MRL[2] (µg/L)	Use or Environmental Source[3]	Health Effects[3]
bromochloromethane (Halon 1011) 74-97-5	0.06	Used as a fire-extinguishing fluid, an explosive suppressant, and as a solvent in the manufacturing of pesticides	**RfD**: 0.01 mg/kg/day associated with increased liver-to-body weight ratio and other metabolic effects (EPA HA)
Synthetic Organic Compound: EPA Method 522			
1,4-dioxane 123-91-1	0.07	Cyclic aliphatic ether; used as a solvent or solvent stabilizer in manufacture and processing of paper, cotton, textile products, automotive coolant, cosmetics and shampoos	**RfD**: 0.03 mg/kg/day associated with liver and kidney toxicity (IRIS) **EPA 10^{-4} Lifetime Cancer Risk**: 0.3 mg/L **Slope Factor**: – 0.011 $(mg/kg/day)^{-1}$ (IRIS) – 0.19 $(mg/kg/day)^{-1}$ (IRIS Draft; 74 FR 21361) **EPA Cancer Class:** B2 – probable human carcinogen (sufficient evidence from animal studies and inadequate/no epidemiologic studies)
Metals: EPA Method 200.8; SM 3125; ASTM D5763-10[4]			
vanadium 7440-62-2	0.2	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst	Associated with altered kidney function indicated by increased blood urea and mild tissue changes
molybdenum 7439-98-7	1	Naturally-occurring element found in ores and present in plants, animals and bacteria; commonly used form molybdenum trioxide used as a chemical reagent	**RfD**: 0.005 mg/kg/day (IRIS) associated with increased uric acid levels **EPA Cancer Class:** D – not classifiable as to human carcinogenicity
cobalt 7440-48-4	1	Naturally-occurring element found in the earth's crust and at low concentrations in seawater, and in some surface and ground water; cobaltous chloride was formerly used in medicine and as a germicide	Associated with effects on blood (increased hemoglobin, polycythemia) and effects on lung function
strontium 7440-24-6	0.3	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions	**RfD**: 0.6 mg/kg/day associated with rachitic bone (rickets) (IRIS) **EPA Cancer Class:** D – not classifiable as to human carcinogenicity
chromium[5] CASRN n/a	0.2	See chromium-6 for use or source information; though the amount measured when analyzing for "total chromium" is the sum of chromium in all of its valence states, the MCL for EPA's current total chromium regulation was determined based upon the health effects of chromium-6	See chromium-6 for health effects information
Chromium-6: EPA Method 218.7			
chromium-6[6] 18540-29-9	0.03	Naturally-occurring element; used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation	**RfD**: – 0.005 mg/kg/day (IRIS, 1998) (basis for MCL) – 0.003 mg/kg/day (IRIS, 2005) (basis for HRL) – Draft RfD: 0.0009 mg/kg/day associated with intestinal lesions (IRIS, Draft 75 FR 60454) **Draft Slope Factor**: 0.5 $(mg/kg/day)^{-1}$ (IRIS, Draft 75 FR 60454)

Contaminant / CASRN[1]	MRL[2] (µg/L)	Use or Environmental Source[3]	Health Effects[3]
Oxyhalide Anion: EPA Method 300.1; SM 4110D; ASTM D658-08			
chlorate 14866-68-3	20	Agricultural defoliant or desiccant; disinfection byproduct; and used in production of chlorine dioxide	**RfD**: 0.03 mg/kg/day associated with enlarged thyroid and mineralization (Office of Pesticide Programs)
Perfluorinated Compounds: EPA Method 537			
perfluorooctanesulfonic acid (PFOS) 1763-23-1	0.04	Surfactant or emulsifier; used in fire-fighting foam, circuit board etching acids, alkaline cleaners, floor polish, and as a pesticide active ingredient for insect bait traps; U.S. manufacture of PFOS phased out in 2002; however, PFOS still generated incidentally	**NOAEL**: 0.03 mg/kg/day associated with decreased body weights, increased liver weights, lowered total cholesterol, lowered triiodothyronine (T3) concentration, and lowered estradiol levels (EPA Provisional HA)
perfluorooctanoic acid (PFOA) 335-67-1	0.02	Perfluorinated aliphatic carboxylic acid; used for its emulsifier and surfactant properties in or as fluoropolymers (such as Teflon), fire-fighting foams, cleaners, cosmetics, greases and lubricants, paints, polishes, adhesives and photographic films	Associated with body weight reduction, and increased liver, kidney and brain weight relative to body weight
perfluorononanoic acid (PFNA) 375-95-1	0.02	Manmade chemical; used in products to make them stain, grease, heat and water resistant	Associated with liver effects
perfluorohexanesulfonic acid (PFHxS) 355-46-4	0.03	Manmade chemical; used in products to make them stain, grease, heat and water resistant	Associated with immune and lymphatic system, neurological, reproductive and developmental effects
perfluoroheptanoic acid (PFHpA) 375-85-9	0.01	Manmade chemical; used in products to make them stain, grease, heat and water resistant	Contaminant is similar to other perfluorinated compounds
perfluorobutanesulfonic acid (PFBS) 375-73-5	0.09	Manmade chemical; used in products to make them stain, grease, heat and water resistant	Associated with decreased blood proteins and

1. CASRN - Chemical Abstracts Service Registry Number
2. MRL - Minimum Reporting Level
3. "Use or Environmental Source" and "Health Effects" further documented in UCMR 3 Contaminants – Information Compendium. EPA 815-B-11-001. January 2012
4. SM – Standard Methods; ASTM – ASTM International
5. Monitoring for total chromium, in conjunction with UCMR 3 Assessment Monitoring, is required under the authority provided in Section 1445(a)(1)(A) of SDWA
6. Chromium-6 will be measured as soluble chromate ion (CASRN 13907-45-4)

Monitoring

- **Time frame**: One consecutive 12-month period during January 2013 - December 2015 (monitoring can span more than one calendar year, as long as conducted during a consecutive 12-month period).
- **Frequency**: *Ground Water*: Monitoring will occur twice in one consecutive 12-month period. Sample events must occur 5 - 7 months apart. *Surface Water or GUDI*: Monitoring will occur in 4 consecutive quarters, with sampling events occurring 3 months apart.
- **Location:** Entry point to the distribution system (EPTDS) for all contaminants, as well as distribution system maximum residence time sampling locations for chromium, chromium-6, cobalt, molybdenum, strontium, vanadium and chlorate.
- **Laboratories**: Samples must be analyzed by EPA-approved laboratories. EPA-approved laboratories will be listed on the UCMR website at http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/laboratories.cfm.

Critical Deadlines and Requirements

Due Date	Requirement	Report through SDWARS[1]	Contact Sampling Coordinator[2]
Following Rule Publication			
October 1, 2012	Systems must submit **contact information** to SDWARS. (Any subsequent changes must be submitted within 30 days of the change occurring).	X	
	Laboratories seeking approval must submit a registration form to participate in the **laboratory approval process**. For more information see: http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/laboratories.cfm.		X
August 1, 2012	**Ground water** systems that wish to monitor from **representative EPTDSs** must submit either state-approved, UCMR 2-approved or propose a new representative sampling plan.		X
October 1, 2012	Deadline for systems to **change their monitoring schedule** (after October 1, systems must provide an explanation for the requested schedule change and obtain EPA approval of the change).	X	X (after October 1)
	PWSs review/edit if necessary, **inventory information** for sampling locations.	X	X (after October 1)
Following Sample Collection			
Within 120 days of sample collection	**Laboratories post data** to SDWARS.	X	
Within 60 days of lab posting data	**PWSs review and approve the data**. If the PWS has not taken action after 60 days, the data are considered approved and ready for state and EPA review.	X	

1. Safe Drinking Water Accession and Review System; at http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/reporting.cfm.
2. Contact via email at: UCMR_Sampling_Coordinator@epa.gov.

UCMR List 1 Data Elements

Public Water System Identification (PWSID) Code	Sampling Point Identification Code	Sample Collection Date	Analytical Method Code	Analytical Result–Value
Public Water System Facility Identification Code	Sampling Point Type Code	Sample Identification Code	Sample Analysis Type	Laboratory Identification Code
Water Source Type	Disinfectant Type	Contaminant	Analytical Results–Sign	Sample Event Code

Additional Information

The **Public Notification Rule** (40 CFR §141.207), published on May 4, 2000 (65 FR 25982) with amendments and corrections included in the Code of Federal Regulations for the Public Notification Rule published on July 1, 2006, requires PWSs to notify the public annually that the results of monitoring for unregulated contaminants are available. CWSs may include their public notice within their CCRs. Details on these reporting requirements can be found in the document: Revised Public Notification Handbook (EPA 816-R-09-013), available on EPA's website at: http://water.epa.gov/lawsregs/rulesregs/sdwa/publicnotification/upload/PNrevisedPNHandbookMarch2010.pdf

Under the **Consumer Confidence Report (CCR) Rule**, as specified in 40 CFR §141.153(d), CWSs must report the monitoring results whenever unregulated contaminants are detected. CCRs are to be sent to all billing customers each year by July 1. (The CCR Rule does not apply to non-community water systems). Details on these reporting requirements can be found on the CCR Home Page at: http://water.epa.gov/drink/info/ccr/regulations.cfm

For More Information

- Safe Drinking Water Hotline: (800) 426 – 4791
- CDX/SDWARS Help Desk: (888) 890 – 1995
- http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/